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| 10/528,337 | 03/18/2005 | Takeshi Obata | 8029-1073 | 6296 |
| <div>466 7590 11/12/2008</div> <div>YOUNG & THOMPSON</div> <div>209 Madison Street</div> <div>Suite 500</div> <div>ALEXANDRIA, VA 22314</div> | | | | |
| EXAMINER | | | | |
| LEE, CYNTHIA K | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1795 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,337

Applicant(s)

OBATA ET AL.

Examiner

CYNTHIA LEE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 3/18/05
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

Priority

Acknowledgement has been made of applicant's claim for priority under 35 USC 119 (a-d). The certified copy has been filed on 3/18/2005.

Information Disclosure Statement

The Information Disclosure Statement (IDS) filed 3/18/2005 has been placed in the application file and the information referred to therein has been considered.

Drawings

The drawings received 3/18/2005 are acceptable for examination purposes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oda (JP 2001-276555).

Oda discloses a fuel cell in which the electrolyte is a polymer electrolyte [0017] (Applicant's solid electrolyte film). The fuel cell has a deoxygenation membrane module 52 prior to entering the cathode. See Drawing 4. It is noted that the membrane module is disposed between the cathode 53a and the passage 9. It is further noted that the membrane module covers the surface of the cathode electrode from the passage 9 (Applicant's claim 2).

Regarding Applicant's oxygen/nitrogen separation coefficient as claimed in claims 1 and 2, Oda discloses that the voltage generated by a fuel cell will improve by increasing the oxygen concentration [0041]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to increase the oxygen concentration of the air of Oda for the benefit of increasing the fuel cell performance. Oda clearly teaches that oxygen concentration is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). MPEP 2144.05

Regarding claims 3 and 4, the membrane comprises alkoxide of silicon, which is a mixture of tetra alkoxysilane and trialkoxysilane (Applicant's polysiloxane-based polymer film) [0027].

Regarding the water vapor transmission coefficient as claimed in claim 6, Oda discloses that the membrane thickness is between 0.1-10 micrometers. If it is less than 0.1, the oxygen density improving becomes insufficient. If it is more than 10, the transmissivity of oxygen will fall [0031]. It would have been obvious to one of ordinary

skill in the art at the time the invention was made to vary the thickness of the membrane depending on the desired oxygen concentration of the air of Oda. Oda clearly teaches that the pore size is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. The instant Specification pg 9, 3rd paragraph, states that "the separation membrane 330 having a film thickness within the range described above, it is desirable that its material has a water vapor transmission coefficient P_w satisfying formula (1) below" Pg 8, last paragraph states that the thickness is 0.1 μm -1 μm . Thus, the water transmission depends on the thickness of the membrane. Thus, varying the thickness of the membrane of Oda will necessarily vary the water transmission coefficient.

Further, Oda discloses that the membrane is immersed in the sol of fluorine component content and calcinated to form a film that has water repellence of 2 μm or less on the membrane to form a hygroscopic surface suppressing film. If the thickness exceeds 2 μm , the transmission quantity of gas will fall. 1 μm or less is desirable. Oda clearly teaches that the thickness of the fluorine sol coating is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05.

Oda does not disclose that the fuel cell is a liquid fuel type fuel cell (Applicant's claim 1), in which methanol is the fuel (Applicant's claim 7). Oda discloses that

methanol is used in the art as fuel [0005]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use methanol as fuel in the fuel cell of Oda since it has been held by the court that the selection of a known material based on its suitability for its intended use is *prima facie* obvious. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art
Unit 1795